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The Iowa farmer and world war II

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The Iowa farmer and world war II

Authors

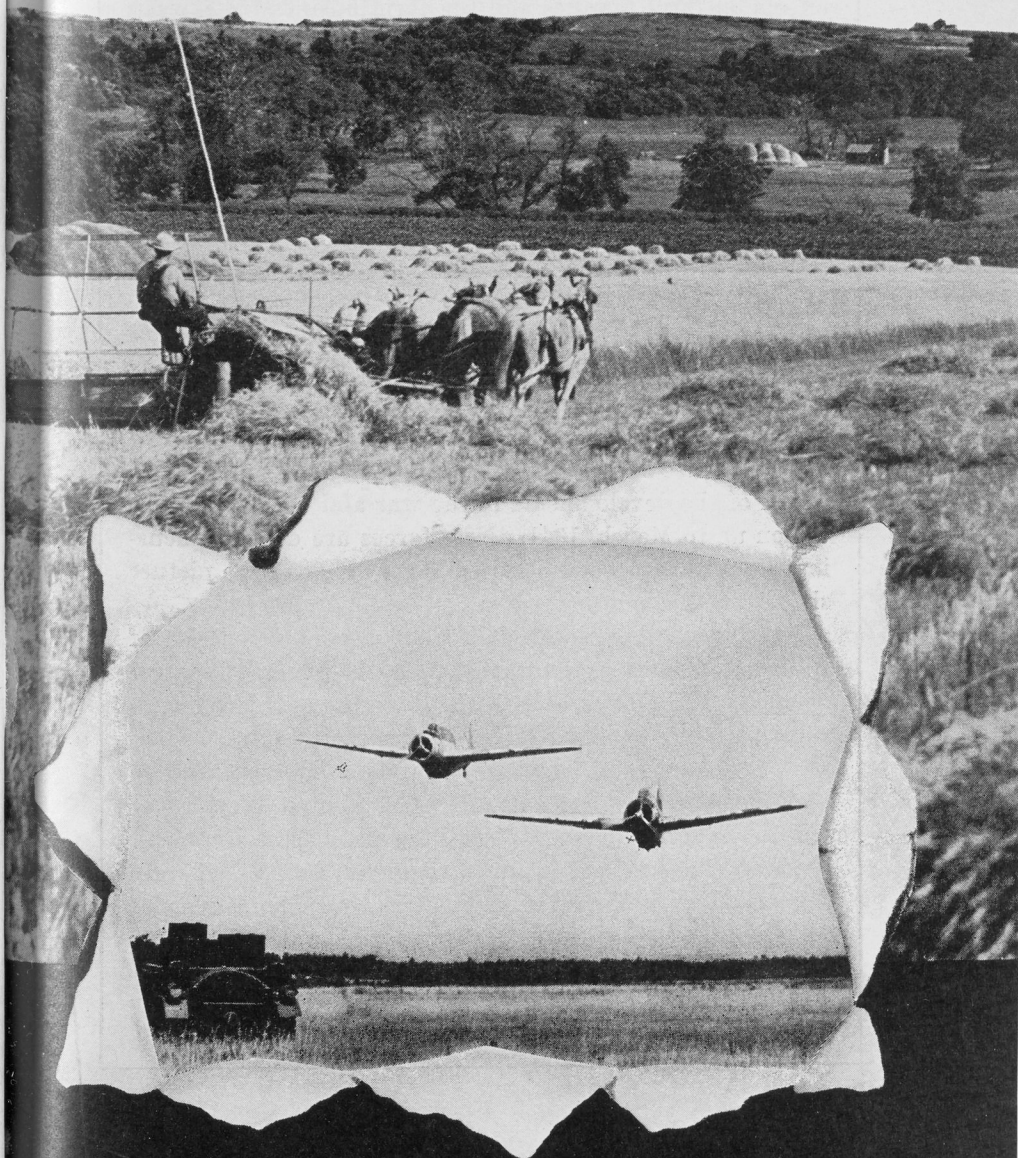
Robert Clark, B. J. Firkins, T. A. Hippaka, C. W. McDonald, E. G. McKibben, Paulena Nickell, Lauren K. Soth, Walter W. Wilcox, Raymond Sayre, and Victor Felter

MARCH, 1941

Clark et al.: The Iowa farmer and world war II

BULLETIN P31 (New Series)

The Iowa Farmer and WORLD WAR II



AGRICULTURAL EXPERIMENT STATION—AGRICULTURAL EXTENSION SERVICE, Cooperating

IOWA STATE COLLEGE

AMES, IOWA

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FOREWORD

The first World War had a tremendous impact on Iowa agriculture and Iowa farm families. We are still wrestling with some of the problems inherited from it. A second World War is now in progress. Concern as to its effects on farm families and the farm business in Iowa is widespread. With a view to clarifying the problem as far as can be done under the present uncertainties, the following committee was appointed largely from the staff of the Iowa State College to study the impact of this war on Iowa agriculture:

Mr. Robert Clark	Dr. E. G. McKibben
Mr. B. J. Firkins	Dr. Paulena Nickell
Dr. T. A. Hippaka	Mr. Lauren K. Soth
Mr. C. W. McDonald	Dr. Walter W. Wilcox, Chm.

Mrs. Raymond Sayre and Mr. Victor Felter, members of the State Committee on Agricultural Programs, also served on this committee.

A summary of the reports of the individual members of the committee is presented in this bulletin, as an interpretation of the developments in the war and the defense situation up to March, 1941. New forces are daily influencing the details presented here and may change the picture sharply within another year.

It is hoped that this timely summary of the effects of the war on Iowa agriculture will be helpful to the staff members of the Iowa State College, to the county agricultural planning committees and to the many other organized groups who are trying to think objectively and to plan so that the undesirable effects of the first World War will be eliminated so far as possible. This statement should prove just as helpful to the farm families who are struggling with their individual problems of adjustment to a rapidly changing environment.

Charles E. Friley

President of the Iowa State College

The Iowa Farmer and World War II

(REPORT OF THE IOWA STATE COLLEGE COMMITTEE ON THE
IMPACT OF THE WAR ON IOWA AGRICULTURE)

World War II is the biggest fact in the Iowa farm situation. Though Iowa is far removed from air bombing and submarine torpedoing, it is on the battle front so far as economic and social effects of the war are concerned. Iowa's commercial agriculture underwent terrific strain during and following World War I, and the pressures arising out of World War II promise to be similar, although less severe.

It is the purpose of this report to estimate what some of these pressures will be. An understanding of the social and economic forces at work is necessary before plans can be made and action taken to ease the shock of war. The experience of the earlier war helps us to understand these forces, but that experience must be interpreted in light of the changed situation today.

* * *

The committee finds that the national defense program is temporarily solving many of the economic and social problems that have plagued Iowa farmers in recent years.

The committee also finds, however, that national defense activity and the world situation are piling up serious problems that will face Iowa farmers a few years hence.

The impact of the war and the defense program is to increase Iowa farmers' incomes and draw off surplus farm population not needed in Iowa farming. But these very changes are making Iowa farming more vulnerable to post-war difficulties. The scene is being laid for a rapid expansion of farmers' investments in buildings, machinery and livestock inventories. If farmers do expand in this way, especially by borrowing, and demand for farm products falls off in a few years, they will be subject to the same series of foreclosures and bank-

ruptcies which occurred following the last World War. Right now it does not appear to the committee that farm prices will shoot upward sharply in the near future, because supplies and marketings of farm products will be large. But the committee emphasizes that the picture is changing rapidly and that an inflationary uptrend may not be far away.

THE FARM FAMILY

CHANGES IN FARM POPULATION

Since the beginning of this country, farm people have moved steadily into the cities, except during periods of severe depression when city jobs were not available. Though farm mechanization has been increasing during the last 5 years, the number of people engaged in farming in Iowa has held about unchanged. City jobs have not been plentiful enough to take care of all the people not needed for farming. The impact of the war and the national defense program will be to increase the movement of farm people to cities.

This movement will be particularly important for young men between the ages of 20 and 35. A recent study in Warren County showed that only 10 out of 25 boys reaching the age of 20 in that county could obtain a farm vacated due to the death or retirement of the operator. Other estimates for the whole state indicate the same situation. Many young men of these ages will be drawn into city employment or into the military services. About one out of every four male farm people is in this age bracket.

VOCATIONAL TRAINING

Although there was a noticeable shortage of technicians during the first World War, the lack of skilled craftsmen apparently was not as acute as it appears to be in the present struggle. Modern armies are a cross-section of our specialized, mechanized civilization, and they demand occupational skills as high as, or even higher than, necessary in normal civil life. There is a serious shortage of teletype operators, business machine operators, radio men and photographers. There are also shortages of clerks, male stenographers, cooks, mechanical

technicians, locomotive engineers, printers, pharmacists, carpenters, linemen, medical technicians and mechanics.

The government is not only setting up a vocational training program for men already in the army but is also organizing a program for educating youth in civil life for various vocational skills needed both in the army and in defense industries. Iowa has 300,000 to 400,000 young men between the ages of 20 and 35. Training for national defense industries has only been given to about 2,500 Iowa young people. More than 100 "refresher-type" courses have been organized; the enrollment in these is 1,200. A special trades-training program for out-of-school youth between 18 and 24 is expected to reach 2,000 young men by next December. Other courses have been started through the NYA where the enrollment at present is 400.

Almost all of these trainees have come from the towns and cities. Defense demands are expediting a shift of the surplus farm population off farms to city employment. But Iowa farm boys must go to the cities as unskilled or semi-skilled laborers due to inadequate training facilities in rural areas.

FARM LABOR

Many of Iowa's young men will be drawn away from the farm labor supply into the army during the next 2 years. Practically all Iowa farm laborers (110,000 of them at the peak of the harvest season) are below 35 years, and most of them between 20 and 35. It is estimated that 3 to 6 percent of Iowa's young men will be called for army service in 1941. Since most farm laborers are unmarried, the proportion of them taken will be higher than this.

Obviously, the draft and industrial employment demand will reduce the supply of labor available for Iowa farm work in 1941 and 1942. However, a serious labor shortage is not now in the picture. Considerable change from hired to family labor can be made on most Iowa farms if necessary. In the east central and southeast sections, farm labor may become fairly scarce because of greater industrial activity there. Other areas will be less affected. Shortages will be felt mostly in the harvest season. Both monthly and daily wages are rising and probably will go higher.

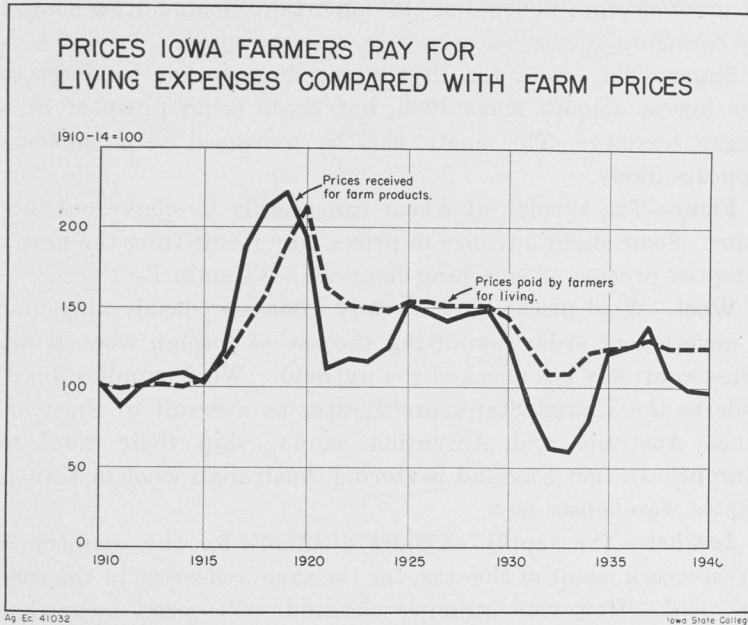
At present, it does not seem likely that many women will be drawn into industry under the defense program. Unless a more serious labor shortage develops than the committee now anticipates, women are not likely to go into industrial work to any large extent. Women will replace men, however, in some lines of social service work, and in leadership for home and community activities. Farm women probably will help a little more with farm work as labor becomes more scarce.

NUTRITION AND HEALTH

Iowa people probably are better physically than ever before in history, but at the same time their health could be improved substantially, considering present-day knowledge of preventive medicine and nutrition.

Studies at Iowa State College have revealed that a high proportion of college girls have tooth and bony-structure defects which were caused by rickets in their childhood days. This group approximates in age the young men going into the army or going into national defense work. About one-fourth of the young men drafted to date under the Selective Service Act from Iowa have been rejected because of physical defects. Poor teeth accounted for one-fourth of the total rejections. Bony defects, including flat feet, spinal weaknesses, etc., accounted for 14 percent of the rejections. Poor eyes caused the rejection of nearly 14 percent, and bad hearts accounted for another 6 percent of the total. Other miscellaneous defects such as hemorrhoids and underweight and overweight conditions accounted for the other rejections.

Many of these health defects, revealed by draft rejections and studies of college girls, could have been avoided or corrected in the early stages by adequate diet or by medical care. The food-stamp program and the school-lunch program, sponsored by federal and local governments, contribute toward improving diets of low-income families. So far, these programs in Iowa have been very small. The free school-lunch program reaches about 15,000 children and may reach 50,000 before the year is out. About 39,000 Iowa families received additional foods under the stamp plan in 1940. Eighteen Iowa counties now have this program.



Since the war will not reduce the supply of basic foods in this country, there is no reason for nutritional standards to be lowered during the next several years. On the contrary, national defense and the Selective Service program may awake public consciousness concerning health problems as never before. Programs to provide better diets and better public health work may well be stimulated under the defense effort.

COST OF LIVING

During World War I, cost of living rose sharply. Retail prices advanced about 60 percent during the war years. Prices farmers received and farm incomes both rose faster than this, so farmers did not suffer from the rise in the prices of things they bought.

In a general way, the same sort of price relationship for Iowa farmers may be expected in this war. That is, prices of live-stock and livestock products probably will go up faster than the prices of things farmers buy. The following are indications

of price changes in some of the important commodities bought by farmers:

Sugar—The quota for 1941 sugar imports has been set at the lowest amount since 1936, but there is no prospect of a sugar scarcity. The quota can be increased if a shortage appears likely.

Flour—The surplus of wheat can readily be converted into flour. Some slight advance in prices may result from the newly adopted process of enriching flour with Vitamin B₁.

Wool—Wool prices have already gone up considerably, but a government order permitting the use of foreign wool in defense contracts has checked the uptrend. Wool supplies available to the United States are greater as a result of the war, since Australia and Argentina cannot ship their wool to Europe. In fact England is storing Australian wool in United States warehouses now.

Leather—The supply of hides available for this country is greater as a result of the war, for the same reason as in the case of wool. However, stronger demand will mean somewhat higher prices.

Ready-Made Clothing—Mail order catalogs show slightly lower clothing prices than a year ago. No increase is anticipated for 1941.

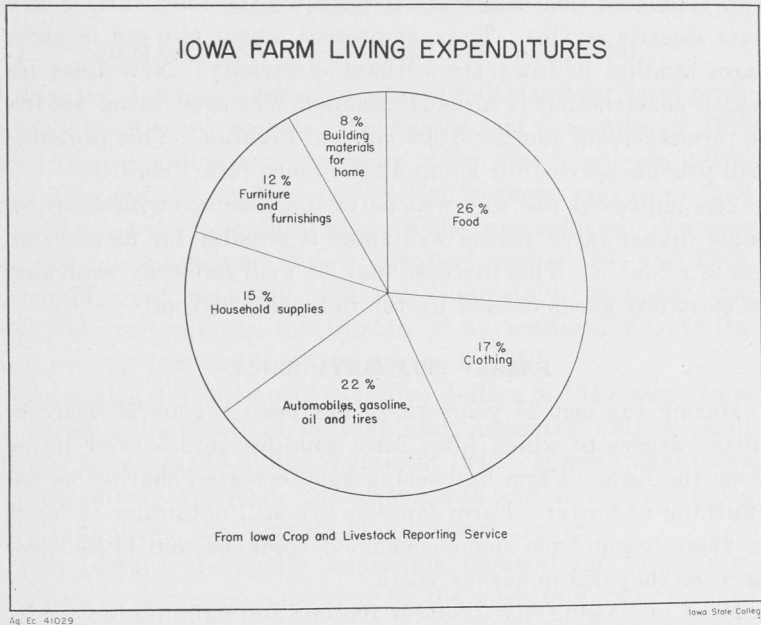
Cotton Goods—Since large surpluses of cotton are on hand, any advance in price will be a result of increased labor costs. A slight rise is in prospect.

Lumber—Lumber prices have already gone up but are not expected to go up much more in the near future. The lumber for army camp construction use has already been purchased.

Household Equipment—Deliveries of such goods as refrigerators and stoves will be delayed by defense orders. There may be some price rises. Prices of aluminum are likely to go higher and supplies for domestic consumption have been sharply limited by the priorities regulations of the Defense Commission.

HOUSING CONDITIONS

A survey made in 1934 indicated that nearly three-fourths of Iowa houses were built prior to the first World War. Painted, frame houses of about seven rooms and more than one story



predominate in this state. The average value is around \$2,400. The survey showed that these houses were much in need of repair, and many of the larger families were living under crowded conditions. About one-fifth of the houses had bathrooms, while one-fourth had piped cold water and one-eighth piped hot water. Increased farm income in recent years has made possible many farm-home improvements. More are needed.

While some building costs will be higher as a result of the war, the higher farm income probably will enable many farm families to improve their living conditions during the next few years. Some repairs can be made without buying materials which are high priced because of the defense program.

ELECTRICITY ON IOWA FARMS

In 1934, almost three out of every four farm families used kerosene or gasoline lamps. Since that time, however, the REA program has brought electricity to many homes. It is

now estimated that 66,000 or one-third of the Iowa farm homes have electric service. Thus, at present, about two out of three farm families in Iowa are without electricity. New lines for which construction is already planned will soon bring service to farmers along another 5,000 miles of highline. This probably will provide service for about 12,500 more farm families.

The impact of the war will be to increase electrification because higher farm income will make it possible for more farmers to afford it. This increase may be held down by shortages in electrical goods caused by the defense program.

FAMILY SELF-SUFFICIENCY

During the last 25 years there has been a general decrease in the degree to which Iowa farm families obtain their living from the farm. Farm butchering has decreased sharply as has churning of butter. Farm families are still obtaining as much of their living from home-consumed chickens and eggs, however, as they did in earlier years.

Food processing, particularly baking and canning, have also declined in importance in Iowa farm homes. Lockers, however, are more widespread in Iowa than in any other state. The lockers have enabled many farm families to do without as much home curing of meats.

There has been a marked decline in the percentage of farms reporting gardens as well as in the value of those gardens. Farmers have also decreased their production of apples. The serious freeze of last fall which will reduce the fruit crop greatly in Iowa in 1941 may induce many families to increase their gardens this year.

The impact of the war in general on home production will be to reduce it. As cash income rises, farmers will decrease their dependence on living from the farm. However, in some lines where scarcities appear, families may increase their home production. If prices of consumption goods should move up faster than now seems likely, this would provide a stimulus for more home production.

THE FARM BUSINESS

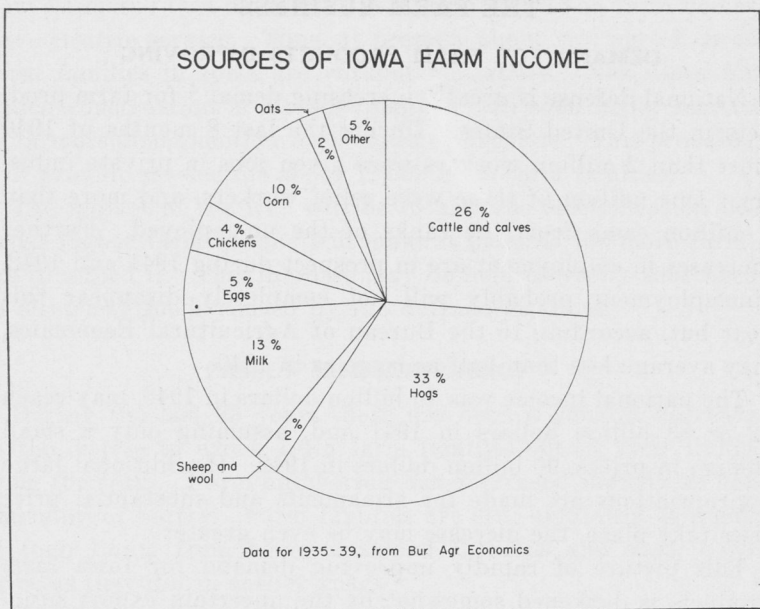
DEMAND FOR FARM PRODUCTS IMPROVING

National defense is greatly increasing demand for farm products in the United States. During the last 8 months of 1940 more than 2 million workers were given jobs in private industry. One million of these were relief workers, and more than 1 million came from the ranks of the unemployed. Further increases in employment are in prospect during 1941 and 1942. Unemployment probably will not completely disappear this year but, according to the Bureau of Agricultural Economics, may average less than half as large as in 1940.

The national income was 76 billion dollars in 1940, may reach 82 or 83 billion dollars in 1941 and, assuming only a small change in prices, 90 billion dollars in 1942. If additional large appropriations are made for armaments and substantial price rises take place, the increase may be even greater.

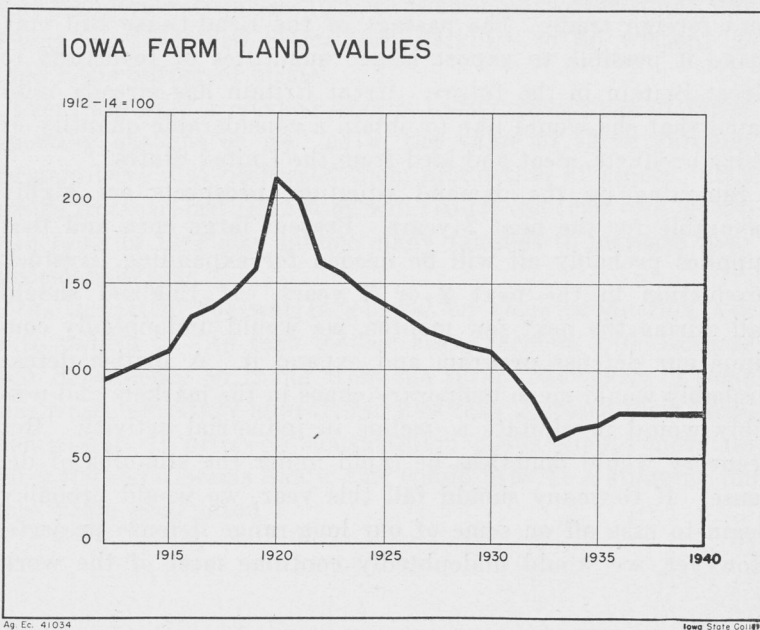
This picture of rapidly improving demand for Iowa farm products is darkened somewhat by the uncertain export situation. The effect of the war to date has been to sharply curtail exports of lard, the most important Corn Belt product going into foreign trade. The passage of the Lend-Lease Bill may make it possible to export larger quantities of foodstuffs to Great Britain in the future. Great Britain has already indicated that she would like to obtain a considerable quantity of dairy products, meat and lard from the United States.

Summing up the demand situation, prospects are highly favorable for the next 2 years. Present large corn and feed supplies probably all will be needed for expanding livestock production in the next 2 or 3 years. If England should fall during the next few months, we would undoubtedly continue our defense program and expand it. A British defeat probably would mean temporary chaos in the markets and possibly would precipitate a decline in industrial activity. But recovery would doubtless be rapid under the stimulus of defense. If Germany should fall this year, we would probably begin to ease off on some of our long-range defense projects. However, we would undoubtedly continue most of the work



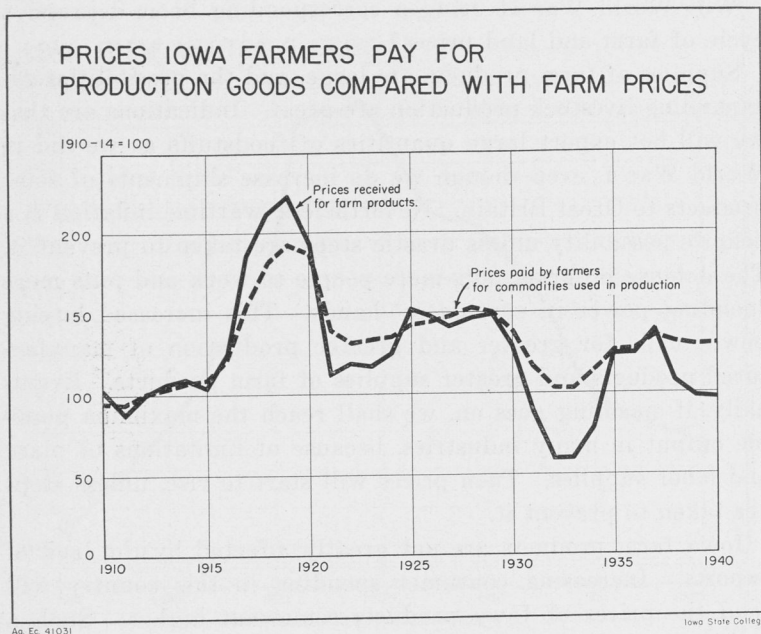
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now underway. The decline in armament activity would be slow for a year or two.

Looking farther ahead, the problem of adjusting to peacetime production after the defense program ends is one of the most serious problems arising out of the war.

WHAT WILL HAPPEN TO PRICES?

In World War I prices of Iowa farm products rose $2\frac{1}{2}$ times their prewar level (see chart). This rise occurred in $3\frac{1}{2}$ years. Then, in a little over $11\frac{1}{2}$ years, prices dropped back to the prewar level. This tremendous inflation and deflation brought with it a more than doubling of land prices in Iowa from 1914 to 1920, followed by a long downtrend to a low point in 1933. The Iowa farm mortgage debt totalled 660 million dollars in 1914, and rose to $11\frac{1}{2}$ billion dollars in the early 1920's. By 1940 this increase in debt had been liquidated through foreclosure and refinancing, and the total debt was again 660 million dollars.

Will World War II bring a corresponding boom-depression cycle of farm and land prices?

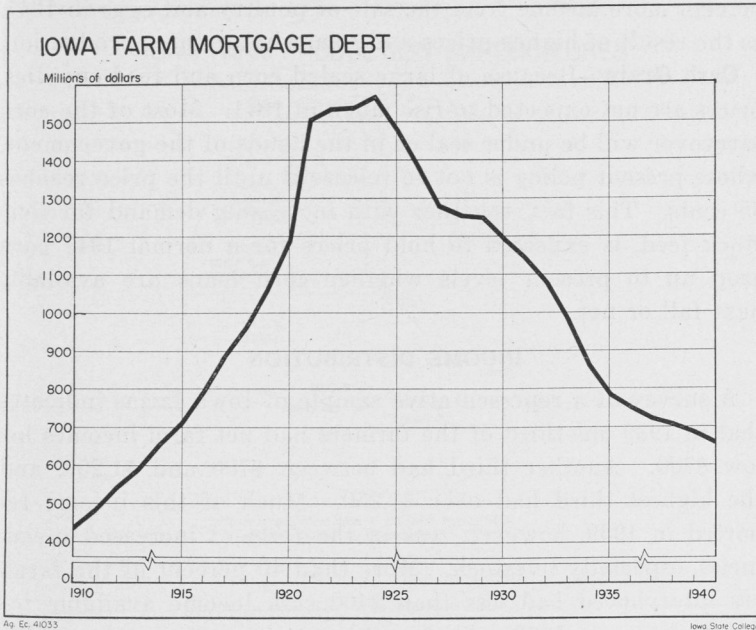
Supplies of farm products are large, and the possibilities for expanding livestock production are great. Indications are that we will not export large quantities of foodstuffs as we did in World War I, even though we do increase shipments of some products to Great Britain. Nevertheless, wartime inflation is a definite possibility unless drastic steps are taken to prevent it. The defense program puts more people to work and puts more spending power in consumers' hands. This increased buying power calls for greater and greater production of manufactured products and greater supplies of farm products. Eventually, if spending goes on, we shall reach the maximum possible output in many industries, because of limitations of plant and labor supplies. Then prices will start to rise, unless steps are taken to prevent it.

Iowa farm products are not greatly affected by the lack of exports. Increasing consumer spending in this country will send the prices of Iowa products somewhat higher. Such a rise in prices together with expanded marketings undoubtedly will be accompanied to some extent by rising land values and rents. In recent years, however, land values have not borne the same relation to farm prices and incomes as they did in earlier years. The relatively recent experience in the last war and the large number of farms for sale probably will act as brakes on rising land values. Credit policies of commercial banks, insurance companies and the Federal Land Bank are not likely to be as lenient as in the last war.

FARM INCOME PROSPECTS

The following table shows cash farm income in Iowa for the last 12 years:

MILLION DOLLARS		MILLION DOLLARS	
1929	756	1935	489
1930	646	1936	585
1931	438	1937	557
1932	280	1938	591
1933	322	1939	655
1934	423	1940	729



The present prospect is for total cash income to Iowa farmers in the neighborhood of 800 million dollars in 1941.

Hogs—Income from the reduced hog marketings in 1941 probably will increase by about 15 percent over 1940 as the result of sharply higher prices. This will encourage a large increase in hog production in the last half of 1941 and in 1942.

Cattle—Income from beef cattle sales probably will be up about 20 percent in 1941 as the result of larger marketings and higher prices. Farmers have been building up cattle inventories for several years in response to high prices. They may overexpand and be caught with large numbers if demand drops off sharply.

Dairying—Iowa dairymen probably will receive around 10 percent more income from their sales of milk and butterfat in 1941 because of larger production and only slightly higher prices.

Poultry—Iowa farmers probably will receive around 7 to 10

percent more income from the sale of poultry and eggs in 1941, as the result of higher prices and somewhat greater production.

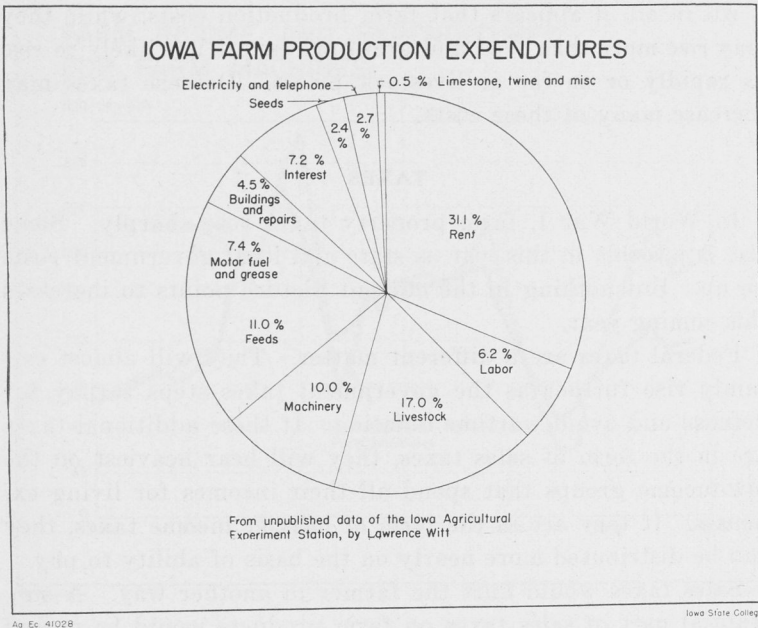
Cash Grain—Because of large sealed corn and feed supplies, prices are not expected to rise much in 1941. Most of the corn carryover will be under seal or in the hands of the government, whose present policy is not to release it until the price reaches 65 cents. This fact, together with increasing demand for livestock feed, is expected to hold prices for a normal 1941 corn crop up to present levels whether corn loans are available next fall or not.

INCOME DISTRIBUTION

A survey of a representative sample of Iowa farms indicates that in 1939 one-third of the farmers had net farm incomes below \$700. Another third had between \$700 and \$1,250, and the highest third had over \$1,250. Much of this income reported in 1939, however, was in the form of increased inventories, especially livestock. More than 40 percent of the farmers interviewed had less than \$400 *cash* income available for family living in 1939. At the other extreme, 15 percent of the farmers had net *cash* incomes of \$1,400 or more. The lower third of Iowa farmers had incomes about the same as, or even less than, the income of a married hired man in the northern half of the state.

The expected increase in Iowa farm income will not result in proportionally higher incomes for all groups. Producers of hogs and beef cattle probably will receive the largest increases. Dairy and poultry producers' incomes will rise somewhat less. Cash-grain farmers may expect even smaller income increases. Farmers with the lower incomes in Iowa are mostly those on smaller farms, obtaining a large part of their incomes from the sale of dairy and poultry products. They also obtain more of their income from the sale of crops than the higher income farmers. For this reason the impact of the war will be to increase the variation in incomes and the spread between the lowest and highest.

With rising costs and incomes, the problems of farm management are more complicated. This further increases the disadvantage of the lower-income farmers.



FARM COSTS

A study at Iowa State College shows that Iowa farmers' expenses are divided as shown in the chart. Prices of many, if not most, of these items will rise as defense activity continues and increases.

Building material prices have already gone up. **Seed** is lower priced because of large supplies and is not likely to be affected by the war situation. **Feed** supplies are plentiful and price rises, if any, will be moderate. **Feeder and stocker livestock** prices probably will go up as the price of finished animals rises. By another year **motor vehicle** supplies and prices probably will be affected by demands of war industries. The same holds true for other **farm machinery**. Yet **motor fuels** are ample, and oil companies are suffering from loss of foreign markets the same as cotton and tobacco growers. **Tires**, on the other hand, may be higher because of the higher transportation costs in importing rubber. Nothing in the present situation indicates that **interest rates** will rise.

All in all, it appears that farm production costs, while they may rise more than feed and grain prices, are not likely to rise as rapidly or as far as livestock prices. Defense taxes may increase many of these costs.

TAXES

In World War I, farm property taxes rose sharply. Some rise is possible in this war as state and local government costs go up. But nothing in the current picture points to increases this coming year.

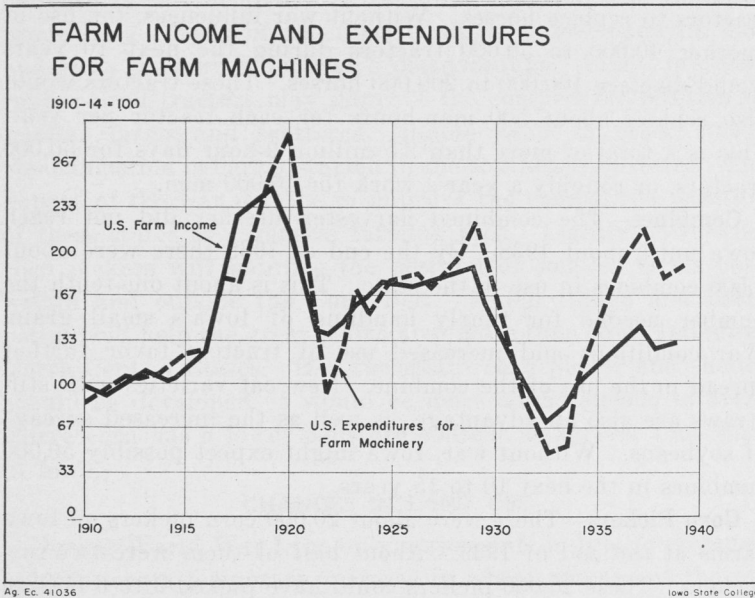
Federal taxes are a different matter. They will almost certainly rise further as the government takes steps to pay for defense and avoid wartime inflation. If these additional taxes are in the form of sales taxes, they will bear heaviest on the low-income groups that spend all their incomes for living expenses. If they are in the form of heavier income taxes, they can be distributed more nearly on the basis of ability to pay.

Sales taxes would hurt the farmer in another way. A substantial part of sales taxes on farm products would be passed back to him in the form of lower prices for farm products. In the case of goods purchased more largely by the higher income groups, a larger percentage of the tax would be paid by the consumer.

MECHANIZATION OF FARMING

Both the shortage of farm labor and high prices for farm products which usually accompany war encourage increases in the use of labor-saving farm machines. The first World War stimulated a rapid shift from animal to mechanical power, a rapid expansion in the use of the combined harvester-thresher for small grains and a revival of interest in the mechanical corn picker in the United States.

There were not over 20,000 to 25,000 tractors on American farms in 1914, and very few of these were on Iowa farms. By the end of 1918, over 150,000 farm tractors were in use, and nearly 9,000 of these were on Iowa farms. The difficulty experienced by Iowa farmers in obtaining satisfactory labor for hand-picking corn during the war increased in-



terest in mechanical corn pickers. During 1919 and 1920, approximately 6,000 of these machines were sold.

Tractors—There are probably about 135,000 tractors on Iowa farms now. If these tractors were uniformly distributed and accompanied by the proper machines, they could easily perform all the usual field work needed on Iowa farms. The allotment per tractor would be only about 160 crop acres, of which 60 to 90 acres would be corn, 40 to 50 acres small grain and the rest legumes and grass. However, these tractors are not uniformly distributed. Indications are that they are used on about 60 percent of Iowa's farms over 40 acres in size—covering about 75 percent of the crop acres.

A continued extension of the use of farm tractors can be expected during the next few years. Though Iowa has enough tractors to handle all the cropland, there are probably some 70,000 Iowa farms over 50 acres in size without tractors. It is easily possible that tractors may be purchased for these farms at the rate of 4,000 or more a year for the next several years. Some farmers on large farms may purchase additional, smaller

tractors to replace horses. Without war influences, the use of another 40,000 to 50,000 tractors during the next 10 years would displace 100,000 to 200,000 horses. These tractors would also replace about 500 man-hours for each tractor per year. This is a total of more than 2.5 million 9-hour days for 50,000 tractors, or roughly a year's work for 10,000 men.

Combines—The combined harvester-thresher did not reach Iowa until about 1938. By the end of 1939 there were about 6,500 combines in use in the state. This is about one-tenth the number needed for timely handling of Iowa's small grain. War conditions and increased use of tractors favor further spread in the use of the combine. New oat varieties with stiff straws are also an advantage, as well as the increased acreage of soybeans. Without war, Iowa might expect possibly 50,000 combines in the next 10 to 15 years.

Corn Pickers—There were about 20,000 corn pickers on Iowa farms at the end of 1939. About half of them were two-row pickers. These 20,000 pickers could have picked 3 to 6 million acres, half to two-thirds of the total. Probably half of Iowa's corn was harvested by mechanical pickers in 1940. Lighter, lower-cost, single-row corn pickers are being studied. Iowa farmers probably will continue to buy corn pickers until there is one for every two or three farms. This would be 70,000 to 100,000 machines or about three to four times the present number.

Hay Equipment—Field hay choppers and combination sweep rake stackers are being developed which may reduce labor requirements in handling hay comparable to the reduction in labor requirements for handling grain by corn picker and combine. The war will greatly step up the acceptance of these new machines if labor becomes scarce.

The war will encourage a faster-than-normal increase in all farm mechanization. But tractor and farm machinery production will be limited during the war by defense, and this will hold down the rate of increase. This situation may lead to farmers bidding against each other for machines and over-investment in such equipment.

Mechanical developments to date have in the main tended to

increase Iowa's comparative advantage in feed and livestock production. Many of the farm equipment developments now underway may work to Iowa's disadvantage. Light, low-cost, rubber-tired tractors may improve the competitive position of smaller farms and scattered, tillable fields in other states. Mechanization is barely started in the southeastern states. The impact of the war may be to improve the competitive position of these states as a general farming area. Lighter, lower-cost corn pickers will improve the position of smaller farms both within and outside the Corn Belt. Mulch tillage and basin listing will help the great plains area more than Iowa and other North Central States. If a successful corn picker and sheller should be developed, it would be more advantageous to areas where corn has a lower moisture content at harvest time than in Iowa.

CHANGES IN LAND USE

During World War I the only major shift in Iowa's cropping pattern was a temporary increase in wheat acreage at the expense of corn acreage. Because of the present large supplies of corn and wheat, no great changes in land use are expected as a result of the present war.

As a result of changes made in crop acreages in recent years under government programs, Iowa farmers have their crops fairly well balanced from the standpoint of soil maintenance for the state as a whole. Many individual farmers, of course, are still depleting their soil through heavy grain farming on hilly land or by failure to replace plant food elements removed through cropping. For all farm land in the state, however, the acreages now are about the same as those recommended by county planning committees several years ago from the standpoint of soil maintenance.

Total acres in intertilled crops are the same as the planning committees recommended; corn acreage is slightly below recommendations, and soybean acreage slightly above.

Although Iowa crop acreages are fairly well in adjustment from the standpoint of conservation, much of the land in need of lime for efficient production of legume crops is not yet being limed. Fully 75 to 80 percent of the soils of Iowa re-

quire lime. The need is greatest in eastern and southern Iowa. It has been estimated that 3 million tons of lime a year for 10 years are needed to meet requirements. Iowa's consumption of lime in 1939 (even with AAA help on purchases) was only 400,000 tons, about 13 percent of requirements.

Similar estimates of fertilizer needs indicate a requirement of 250,000 to 300,000 tons—principally phosphates. Consumption of commercial fertilizers in Iowa has been averaging around 13,000 tons in recent years.

Consumption of fertilizer and lime seems to be closely related to the rise and fall in farm income. Increased farm income as a result of the defense program, therefore, probably will increase the use of fertilizers in Iowa.

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